UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,533	04/10/2006	Hidetoshi Yamasaki	2006-0476A	8903

52349 7590 07/09/2008

WENDEROTH, LIND & PONACK L.L.P.
2033 K. STREET, NW
SUITE 800
WASHINGTON, DC 20006

EXAMINER	
PATEL, MUNJALKUMAR C	
ART UNIT	PAPER NUMBER
4113	

NOTIFICATION DATE	DELIVERY MODE
07/09/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Office Action Summary	Application No.	Applicant(s)	
	10/575,533	YAMASAKI ET AL.	
	Examiner	Art Unit	
	Munjal Patel	4113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/10/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 12 is objected to because of the following informalities: page 65 lines [21-23] "The monitoring data is time division multiplexed in to the uplink transmission data with a slot timing which is only allocated to a **downlink**". The word "downlink" should be replaced with word "uplink". For the purpose of examination examiner assumes accordingly. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claim 1-3, 6-14, 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Kondo (US PAT 5,293,380 dated March 8, 1994) here in after referenced as Kondo.

2. Regarding claim 1 Kondo discloses Inter-station transmission method (Kondo: Abstract) used in mobile communication system, the mobile communication system comprising: a mobile station (Kondo: Fig 1: 5) by means of TDMA system (Kondo: Abstract) a response packet in response to a packet received from the mobile station(Kondo: column 3 lines [67-68], column 4 lines [1-3]), wherein the base station includes:

at least one radio base station(Kondo: fig 1: 3) operable to demodulate an uplink packet signal (Kondo: Fig 1: 3 & 7, along with ability to handle TDMA frames describes

functional blocks that operable to demodulate an uplink packet) received from the mobile station (Kondo: Fig 1:5) and extract uplink transmission data (Kondo: Fig 1: 3 & 7, along with ability to handle TDMA frames as stated in summary describes functional blocks that extracts an uplink packet), and to modulate downlink transmission data to be transmitted to the mobile station and generate a downlink packet signal (Kondo: Column 3 lines [1-8] describes base station communicating with mobile station, which implies modulating downlink transmission data and generate downlink packet signal) ;
a communication control station operable to receive the uplink transmission data from the at least one radio base station(Kondo: Column 2 lines [60-70] describes base station communicating with control station, which implies communication control station operable to receive the uplink transmission data from at least one radio base station), generate downlink transmission data corresponding to the uplink transmission data and transmit the downlink transmission data to the at least one radio base station(Kondo: Column 2 lines [60-70] describes base station communicating with control station, which implies generating downlink transmission data corresponding to the uplink transmission data and transmit the downlink transmission data to the at least one radio base station);
And at least one inter-station transmission path which establishes a wired connection between the at least one radio base station and the communication control station (Kondo: Fig 1: Communication cables 4-a & 4-b, column 2 lines [66-68]),
the uplink transmission data is transmitted, from the at least one radio base station to the communication control station(Kondo: Fig 1 & column 3 lines [1-8]), in a TDMA frame format (Kondo: Column 2 lines [35-40]) which is used for a radio link between the

at least one radio base station (Kondo: Fig 1 : 3a & 3b , column 2 lines [66-68]) and the mobile station (Kondo: Fig 1: Mobile station 5, column 3 lines[4]), and in the communication control station (Kondo: Fig 1: control station 1, column 3 lines [2-3]), the uplink transmission data received from the at least one radio base station is processed in the TDMA frame format (Kondo: Column 2 lines [35-40]).

3. Regarding claim 2, Kondo discloses everything in claim 1, along with the downlink transmission data is transmitted, from the communication control station to the at least one radio base station (Kondo: Column 4 lines [23-41] describes procedure of communication control station communicating with base station in TDMA format) , in the TDMA frame format, and in the at least one radio base station, the downlink is transmission data received from the communication control station is processed in the TDMA frame format (Kondo: Column 2 lines [35-40])..

4. Regarding claim 3, Kondo discloses everything in claim 2 along with downlink transmission data is transmitted, from the communication control station(Kondo: Column 4 lines [23-41] describes procedure of communication control station communicating with base station), in accordance with a predetermined communication control station transmission clock (Kondo: Column 4 lines [41-44]), and in the at least one radio base station, a radio base station reception clock synchronized (Kondo: Column 5 lines [45-48]), with the communication control station, transmission clock is reproduced from the downlink transmission data received from the communication control station and the downlink transmission data is processed by using the radio base station reception clock (Kondo: Column 5 lines [36-45]).

5. Regarding claim 6, Kondo discloses everything in claim 1 as above, along with when a response signal is transmitted from the communication control station, only a payload portion of the response packet is transmitted to the at least one radio base station (Kondo: Fig 6 & 8 describes a control station and base station communication which functions as modulating and demodulating TDMA packets, demodulating is striping header and sending payload to further circuitry and eventually to base station) , and in the at least one radio base station, transmission of the response packet is begun with a predetermined timing, by using header information previously retained, without waiting for an arrival of the payload portion from the communication control station (Kondo: Column 5 lines [60-65] describes circuitry which transform signal codes to transmission format from the previously retained information beforehand).

6. Regarding claim 7, Kondo discloses everything in claim 3 as above, along with a plurality of the radio base stations are connected to the communication control station respectively via the plurality of inter-station transmission paths (Kondo: Column 2 lines [64-70] column 3 lines [1-8] & Column 3 lines [42-49]) , and each of the plurality of radio base stations adjusts, by a clock unit of the radio base station operation clock (Kondo: Column 3 lines [49-52]), a delay time difference, which occurs according to the length of the inter-station transmission path, between a downlink transmission path delay and a predetermined transmission path delay.

7. Regarding claim 8, Kondo discloses everything in claim 1 as above along with the plurality of radio base stations are connected to the communication control station respectively via the plurality of inter-station transmission paths (Kondo: Column 2 lines

[64-70] column 3 lines [1-8] & Column 3 lines [42-49]), and in the communication control station, a plurality of pieces of uplink transmission data, which are respectively outputted from the plurality of radio base stations and correspond to a same packet received from the mobile station, are received in a predetermined slot (Kondo: Fig 7 & Column 6 lines [42-49]), a reception timing of uplink transmission data is detected (Kondo: Fig 7 & Column 6 lines [48-52]) , the uplink transmission data corresponding to the packet having been first received, and a selection process is performed only on uplink transmission data which has been received before a predetermined period of time has passed after the reception timing (Kondo: Column 7 lines [55-65] describes a selection process of uplink transmission data based on the set period of time delay).

8. Regarding claim 9, Kondo discloses everything in claim 8 as above along with the predetermined period of time is set according to a length of an area covered by the plurality of radio base stations (Kondo: Column 1 lines [65-70] Column 2 lines [1-6] & Column 4 lines [6-12]).

9. Regarding claim 10, Kondo discloses everything in claim 8 as above along with the predetermined period of time is set according to a length of a longest inter-station transmission path among the plurality of inter-station transmission paths (Kondo: Column 1 lines [65-70] Column 2 lines [1-6] & Column 4 lines [6-12]).

10. Regarding claim 11, Kondo discloses everything in claim 3 as above along with where in the communication control station, the downlink transmission data, into which dummy data for reproducing the radio base station reception clock is inserted, is

transmitted in a period which is within the TDMA frame and in which a channel data packet to be transmitted is not present (Kondo: Column 6 lines [10-14]).

11. Regarding claim 12, A radio base station monitoring method used in a mobile communication system, the mobile communication system comprising a mobile station (Kondo: Fig 1:5) and a base station which is operable to return to the mobile station by means of a TDMA system (Kondo: Abstract) a response packet in response to a packet received from the mobile station, within a same time slot as that used for receiving the packet, wherein the base station includes:

at least one radio base station (Kondo: Fig 1:3) operable to demodulate an uplink packet signal (Kondo: Fig 1:3 &7, along with ability to handle TDMA frames describes functional blocks that operable to demodulate an uplink packet) received from the mobile station (Kondo: Fig 1:5) and extract uplink transmission data (Kondo: Fig 1:3 &7, along with ability to handle TDMA frames as stated in summary describes functional blocks that extract and uplink packet) and to modulate downlink transmission data to be transmitted to the mobile station and generate a downlink packet signal (Kondo: Column 3 lines [1-8] describes base station communicating with mobile station, which implies modulating downlink transmission data and generate downlink signal);

a communication control station operable to receive the uplink transmission data from the at least one radio base station (Kondo: Column 2 lines [60-70] describes base station communicating with control station, which implies communication control station operable to receive the uplink transmission data from at least one radio base station), generate downlink transmission data corresponding to the uplink transmission data and

transmit the downlink transmission data to the at least one radio base station (Kondo: Column 2 lines [60-70] describes base station communicating with control station, which implies communication control station transmitting downlink data to at least one radio base station); and at least one inter-station transmission path which establishes a wired connection between the at least one radio base station and the communication control station (Kondo: Fig 1: Communication cables 4-a & 4-b, Column 2 lines [66-68])
in the at least one radio base station, monitoring data is generated for notifying a state of the radio base station to the communication control station, the monitoring data is time division multiplexed into the uplink transmission data with a slot timing which is only allocated to a downlink, and the uplink transmission data and the monitoring data are transmitted (Kondo: Fig 8 & Column 7 lines [3-5] describes CPU circuit for supervising the entire base station) , to the communication control station, in a TDMA frame format which is used for a radio link between the radio base station and the mobile station, and in the communication control station, the uplink transmission data, which is received from the at least one radio base station, is processed in the TDMA frame format, and a state of the at least one radio base station is monitored by the monitoring data.

12. Regarding claim 13 A mobile communication system comprising a mobile station (Kondo: Fig 1:5) and a base station which is operable to return to the mobile station by means of a TDMA system a response packet in response to a packet received from the mobile station, within a same time slot as that used for receiving the packet, wherein the base station includes:

at least one radio base station (Kondo: Fig 1:3) operable to demodulate an uplink packet signal (Kondo: Fig 1:3 & 7, along with ability to handle TDMA frames describes functional blocks that is operable to demodulate an uplink packet) received from the mobile station (Kondo: Fig 1:5) and extract uplink transmission data (Kondo: Fig 1:3 & 7, along with ability to handle TDMA frames as stated in summary describes functional blocks that extracts an uplink data), and to modulate downlink transmission data to be transmitted to the mobile station and generate a downlink packet signal (Kondo: Column 3 lines [1-8] describes base station communicating with mobile station, which implies modulating downlink transmission data and generate downlink packet signal);
a communication control station operable to receive the uplink transmission data from the at least one radio base station (Kondo: Column 2 lines [60-70] describes base station communicating with control station, which implies communication control station operable to receive the uplink transmission data from at least one radio base station), generate downlink transmission data corresponding to the uplink transmission data and transmit the downlink transmission data to the at least one radio base station (Kondo: Column 2 lines [60-70] describes base station communicating with control station, which implies generating downlink transmission data corresponding to the uplink transmission data and transmit the downlink transmission data to the at least one radio base station); and at least one inter-station transmission path which establishes a wired connection between the at least one radio base station and the communication control station (Kondo: Fig 1: Communication cables 4-a & 4-b, column 2 lines [66-68]),
the at least one radio base station transmits, to the communication control station

(Kondo: Fig 1 & column 3 lines [1-8]), the uplink transmission data in a TDMA frame format (Kondo: Column 2 lines[35-40]) which is used for a radio link with the mobile station (Kondo: Fig 1: Mobile station 5, column 3 line [4]), the communication control station (Kondo: Fig 1: control station 1, column 3 lines [2-3]) processes the uplink transmission data, which is received from the at least one radio base station, in the TDMA frame format, and transmits, to the at least one radio base station, the downlink transmission data in the TDMA frame format, and the at least one radio base station processes the downlink transmission data, which is received from the communication control station, in the TDMA frame format (Kondo: Column 2 lines [35-40]).

13. Regarding claim 14 The mobile communication system according to claim 13, wherein the communication control station includes: a signal generating unit operable to generate a communication control station transmission clock for providing a transmission timing of the downlink transmission data and generate a communication control station reception clock for providing a reception timing of the uplink transmission data (Kondo: Fig 7 Column 6 lines [33-64]); a data generating unit operable to generate, in accordance with the communication control station transmission clock, the downlink transmission data and transmit the downlink transmission data (Kondo: Fig 8:3 column 7 lines [20-23]); and a reception unit (Kondo: Fig 9 and Column 7 lines [24-54]) operable to receive, in accordance with the communication control station reception clock, the uplink transmission data, and the at least one radio base station includes: a reproduction unit operable to reproduce, from the downlink transmission data received from the communication control station, a radio base station reception clock and a radio

base station transmission clock which are synchronized with the communication control station transmission clock unit (Kondo: Fig 9 and Column 7 lines [24-54]); and a radio unit operable to process the downlink transmission data by using the radio base station reception clock reproduced in the reproduction unit and process the uplink transmission data by using the radio base station transmission clock reproduced in the reproduction unit. unit (Kondo: Fig 9 and Column 7 lines [24-65])

14. Regarding claim 16, The mobile communication system according to claim 14, wherein the plurality of radio base stations are connected to the communication control station respectively via the plurality of inter-station transmission paths (Kondo: 1: 4-a & 4-b, column 2 lines [66-68]), in the communication control station, the reception unit is operable to receive, in a predetermined slot, a plurality of pieces of uplink transmission data, which are respectively outputted from the plurality of radio base stations and correspond to a same packet received from the mobile station, and the communication control station further includes: a detection unit operable to detect a reception timing of uplink transmission data (Kondo: Fig 9: Comparator 87 Column 8 lines [20-23]), the uplink transmission data corresponding to the packet having been first received; and a selection unit (Kondo: Fig 9, Column 7 lines [55-70] column 8 lines [1-7]) operable to perform a selection process only on uplink transmission data which has been received before a predetermined period of time has passed after the reception timing.

15. Regarding claim 17, The mobile communication system according to claim 14, wherein the data generating unit of the communication control station generates the downlink transmission data, into which dummy data for reproducing the radio base

station reception clock is inserted, and transmits the down link transmission data in a period which is within the TDMA frame and in which a channel data packet to be transmitted is not present (Kondo : Column 6 lines [29-32] describes sync configuration is done before the start of operation).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 4, 5, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over obviousness over Kondo(US PAT 5,293,380 dated March 8, 1994) here in after referenced as Kondo in further view of Borth et al(US PAT: US 4,852,090 dated Jul 25, 1989) here in after referenced as Borth.

3. Regarding claim 4, Kondo discloses everything in claim 3 as above, However Kondo fails to disclose radio reception clock reproduction by using PLL control, However examiner maintains that it was well known in the art at the time of invention to use PLL control to reproduce clock as taught by Borth.

4. In similar field of endeavor Borth discloses TDMA communication system with adaptive equalization. In addition Borth discloses the radio base station reception clock is reproduced in the at least one radio base station by using PLL control (Borth: Column 11 lines [42-61] for the purpose of validating the time slot detect signal).

5. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Kondo by specifically providing PLL control to reproduce clock as taught by Borth for the purpose of validating time slot detect signal (Borth: Column 11 lines 41-43)

6. Regarding claim 5, Kondo discloses everything in claim 3 as above along with in the communication control station, a communication control station reception clock, which results from multiplying or dividing the communication control station transmission clock by n (n is a natural number), is used to receive the uplink transmission data, and in the at least one radio base station, a radio base station operation clock is generated by multiplying the radio base station reception clock by m (m is an integer greater than 1), the uplink transmission data is transmitted by using a radio base station transmission clock which results from multiplying or dividing the radio base station operation clock by k (k is a natural number) and has a frequency synchronized with the communication control station reception clock (Kondo: Fig 7: counter 72 and clock signal generator 71, column 6 lines[33-38]), and a phase difference (Borth: Column 11 lines [42-61])., which occurs according to the length of the at least one inter-station transmission path, between the radio base station transmission clock and the communication control station reception clock is adjusted by a clock unit of the radio base station operation clock.

7. However Kondo fails to disclose synchronization with phase difference, between the radio base station transmission clock and the communication control station,

8. However the examiner maintains that it was well known in the art to provide synchronization with phase difference between the radio base station transmission clock and the communication control station, as taught by Borth.

9. In similar field of endeavor Borth discloses TDMA communication system with adaptive equalization. In addition Borth discloses synchronization with phase difference, between the radio base station transmission clock and the communication control station (Borth: Column 11 lines [42-61]).

10. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Kondo by specifically providing synchronization with phase difference, between the radio base station transmission clock and the communication control station as taught by Borth for the purpose of validating time slot detect signal (Borth: Column 11 lines 41-43)

11. Regarding claim 15, The mobile communication system according to claim 14, However Kondo fails to disclose at least one radio base station further includes an adjusting unit operable to control an amount of overall transmission delays of an entire system by adjusting a phase difference which occurs according to a length of the at least one inter-station transmission path, between the radio base station transmission clock and the communication control station reception clock.

12. However, the examiner maintains that It was well known in the art to provide at least one radio base station further includes an adjusting unit operable to control an amount of overall transmission delays of an entire system by adjusting a phase difference which occurs according to a length of the at least one inter-station

transmission path, between the radio base station transmission clock and the communication control station reception clock as taught by Borth.

13. In similar field of endeavor Borth discloses TDMA communication system with adaptive equalization. In addition Borth discloses at least one radio base station further includes an adjusting unit operable to control an amount of overall transmission delays of an entire system by adjusting a phase difference (Borth: Timing controller 470 column 11 lines [42-61]), which occurs according to a length of the at least one inter-station transmission path, between the radio base station transmission clock and the communication control station reception clock.

14. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Kondo by specifically providing at least one radio base station further includes an adjusting unit operable to control an amount of overall transmission delays of an entire system by adjusting a phase difference which occurs according to a length of the at least one inter-station transmission path, between the radio base station transmission clock and the communication control station reception clock as taught by Borth for the purpose of validating time slot detect signal (Borth: Column 11 lines 41-43)

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. US 4009343 A: Switching and activity compression between telephone lines and digital communication channels.

b. US 7139274 B2: Method and system for a data transmission in a communication system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Munjal Patel whose telephone number is (571)270-5541. The examiner can normally be reached on Monday - Thursday 8:00 AM - 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jefferey Harold can be reached on 571-272-7519. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Munjal Patel
Examiner
Art Unit 4113

/M. P./
Examiner, Art Unit 4113
/Jefferey F Harold/
Supervisory Patent Examiner, Art Unit 4113